Use of the OSCE to Evaluate Brief Communication Skills Training for Dental Students

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Abstract: Although communications competency is recommended by the American Dental Education Association, only a few (n=5) dental schools report evaluating students’ skills using a competency examination for communication. This study used an objective structured clinical examination (OSCE) to evaluate dental students’ competency in interpersonal and tobacco cessation communication skills. All students were evaluated on their interpersonal communication skills at baseline and at six months post-OSCE by standardized patients and on their tobacco cessation communication skills by two independent raters. First- and second-year dental students (n=104) were randomized to a control or intervention group. One month after the baseline OSCE, students in the intervention group participated in a two-hour training session in which faculty members communicated with a standardized patient during a head and neck examination and counseled the patient about tobacco cessation. There were no statistically significant differences from baseline to post-test between the intervention and control group students as measured by the OSCE. However, among first-year students, both the intervention (n=23) and control (n=21) groups significantly increased in tobacco cessation communication scores. Second-year students in both intervention (n=24) and control (n=28) groups declined in interpersonal communication skills from baseline to post-test. Overall, this one-shot intervention was not successful, and results suggest that a comprehensive communication skills training course may be more beneficial than a single, brief training session for improving dental students’ communication skills.

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Effective interpersonal communication between providers and patients is important in all the health professions disciplines. It is also a vital component for achieving health literacy for patients. Health literacy is defined in Healthy People 2010 as “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services for appropriate health decisions.” Two objectives in the Health Communications focus area of Healthy People 2010 are directly related to health literacy. The first, Objective 11-2, is to “improve the health literacy of persons with inadequate or marginal literacy skills.” In addition, Objective 11-6 is to “increase the proportion of persons who report that their health care providers have satisfactory communication skills.” These objectives were measured nationally in the National Assessment of Adult Literacy and the Medical Expenditure Panel Survey.

Dentists and other health care providers should appropriately communicate with their patients by using plain language, listening to their concerns, and encouraging patients to ask questions. Cross-sectional studies indicate that dentists who effectively communicate with patients demonstrate increased patient satisfaction and compliance and decreased
patient anxiety. However, few studies have assessed the effectiveness of such training in dental school. Communications training is likely most effective when implemented within predoctoral education.5,7

The American Dental Education Association has defined several communication-related competencies for graduating dental students: assess patient goals, values, and concerns to establish rapport and guide patient care; identify patients’ chief complaints; and obtain medical, dental, psychosocial, and behavioral histories.8 However, in a 2001 survey of U.S. dental schools, only fourteen of forty schools (35 percent) had a separate course on interpersonal communication, and only five schools (12 percent) evaluated students’ communication skills with a competency examination. Of the schools that evaluated competency, four used an objective structured clinical examination (OSCE) methodology during which standardized patients assessed students’ communication skills.4

The OSCE has been used in medical education for over three decades to evaluate students’ clinical skills in a standardized context. Individuals are trained to portray a patient in a mock situation during which students conduct clinical interviews and/or examinations.9 Although the OSCE has had limited use in dental education, a recent study used the OSCE to assess the competency in medical students’ communication skills after completion of specific communications curricula.7

This article reports the use of an oral cancer prevention and early detection OSCE to evaluate dental students’ interpersonal and tobacco cessation counseling communication skills following brief communication skills training versus those of a control group. During an oral cancer examination or when counseling about tobacco use cessation, it is important for providers to appropriately communicate with patients.

This study was conducted from September 2005 to March 2006. Prior to the beginning of the study, all first- and second-year students had received instruction in tobacco cessation counseling techniques during a preventive dentistry course (freshmen: fall 2005; sophomores: fall 2004). Further instruction on medical and dental history taking and interviewing skills was given during early clinical experiences (freshmen: summer and fall 2005; sophomores: summer and fall 2004, spring and fall 2005). Additionally, second-year students completed a behavioral science course in the spring semester of their freshman year (spring 2005). It was expected that sophomores would have stronger communication skills than freshmen because sophomores have completed several courses with communication skills content and have begun seeing patients on a limited basis.

Methods

The PRECEDE-PROCEED framework10 was used to design, implement, and evaluate a randomized two-group pre-test/post-test study to examine the association between faculty-facilitated standardized patient-based training in oral cancer prevention and early detection and the oral cancer prevention and detection skills among first- and second-year predoctoral dental students enrolled at the Medical University of South Carolina (MUSC). First- and second-year dental students (n=104) at MUSC gave written informed consent to participate in the voluntary study, which was conducted as an additional educational experience within the normal clinical curriculum. The first two years of dental school are an opportune period to train students in these communication skills prior to their daily interactions with patients in the clinical setting. Third- and fourth-year dental students were excluded because they have completed most of their didactic coursework.

Prior to the beginning of the study, all students had received instruction in interpersonal communication skills and tobacco cessation counseling techniques. Competency in interpersonal and tobacco cessation communication skills was evaluated using an objective structured clinical examination (OSCE) during which students conducted an intra/extraoral head and neck examination on a standardized patient who was trained to portray a current smoker. Students also counseled the standardized patient about tobacco use cessation. The baseline assessment took place in September 2005, and post-testing was conducted in March 2006.

Three weeks after all students completed the baseline OSCE, students randomized to the intervention group participated in a two-hour faculty-facilitated training session with standardized patients. The control group did not participate in the training session. Prior to the intervention, volunteer dental faculty were introduced to an oral cancer prevention and detection standardized patient scenario during an instructional session. To ensure standardization, they also were given checklists of the criteria to cover with each student. During the intervention training session, dental faculty members demonstrated how
to communicate with the patient while conducting an intra/extraoral head and neck examination and how to counsel a cigarette smoker about tobacco use cessation. Following the demonstration, faculty members observed the students as they conducted head and neck examinations on each other.

At both the pre-test and post-test OSCE, the standardized patient evaluated the students on their patient/dental student interpersonal communication skills by using a checklist developed by the MUSC Center for Clinical Evaluation and Teaching (Figure 1). The six checklist items were scored on a rating scale from 1 (poor) to 5 (excellent). Responses to items were tallied (total possible=30), and mean scores were computed at pre-test and post-test for the control and intervention groups within each academic year.

Two reviewers (the primary author and a volunteer dental faculty member who had not participated in the intervention training sessions) evaluated whether a student used all of the five As of tobacco cessation counseling11 during the OSCE (Figure 2). Reviewers received an itemized checklist and viewed videotapes of each student encounter with the standardized patient at the pre-test and post-test OSCE. The five tobacco cessation counseling (TCC) communication items were scored dichotomously, with a “1” given if the student performed the item and “0” if the student did not perform the item (total possible=5).

Analysis of variance (ANOVA) was used for both the interpersonal and TCC communication checklists to compare scores between the intervention and control groups within each academic year. For

### PATIENT/DENTAL STUDENT INTERACTION

Please rate the student according to the following scale:

1 = POOR
2 = FAIR
3 = GOOD
4 = VERY GOOD
5 = EXCELLENT

How was the student you just saw at

1. speaking to you in a direct manner about the seriousness of your condition?
2. demonstrating sensitivity when discussing the issues that concern you?
3. behaving warmly but professionally throughout the encounter?
4. using words you can understand when discussing your problem?
5. treating you like you’re on the same level: never “talking down” to you or treating you like a child?
6. encouraging you to ask questions?

Source: Medical University of South Carolina, Center for Clinical Evaluation and Teaching.

Figure 1. Interpersonal communication checklist
each class of students, the paired $t$ test was used for within group comparisons from pre-test to post-test. Pre-test scores were also used as a covariate in analysis of covariance (ANCOVA) to evaluate differences in group scores at post-test within each academic year. An alpha level of 0.05 was used in all analyses. This study was approved by the MUSC Institutional Review Board for Human Subjects (HR #15625).

Results

Communication checklists were completed for ninety-six first-year (44/52, 85 percent response rate) and second-year (52/52, 100 percent response rate) dental students. At baseline, second-year students in the control group had significantly higher interpersonal communication skills compared with first-year control group students ($p=0.02$). On average, 63 percent of first-year students received interpersonal communication scores of “very good” or “excellent,” compared with 71 percent of second-year students. However, there were no baseline differences in interpersonal communication skills between the intervention and control groups for either class of students.

After controlling for academic year, ANCOVA results showed no difference in interpersonal communication scores between the intervention and control groups from pre-test to post-test. With the exception of first-year students in the control group, interpersonal communication scores decreased at post-test for each group of students, with 50 percent of first-year and 55 percent of second-year students receiving scores of “very good” or “excellent.” Mean scores at pre-test and post-test for the control and intervention groups are given in Table 1. Mean scores for each of the six interpersonal communication questions are given in Table 2.

There were no baseline differences in TCC communication skills between the intervention and control groups after controlling for academic year. In general, students used three to four of the five As when communicating with the standardized patient about tobacco cessation. Students were least likely to arrange for a follow-up visit. TCC communication scores increased at post-test for first-year students. First-year intervention group students had significantly higher TCC communication skills at post-test when compared with second-year intervention group students ($p=0.02$). However, there were no significant differences in TCC communication scores between the intervention and control groups for either class of students.


Figure 2. Tobacco cessation counseling communication checklist
Discussion

Results from this study were disappointing and illustrate that a brief, one-shot faculty-facilitated communication skills training was not sufficient to improve dental students’ communication skills. A comprehensive training course that includes frequent reinforcements would likely be more beneficial. Although a previous study found that brief motivational interviewing training improved dental students’ smoking cessation communication skills, no pre-test to post-test differences were found in students’ TCC communication skills in this study.

Limitations of this study include the potential for crossover between the intervention and control groups. Because this was an educational intervention, students could not be blinded to their group assignments. Another major limitation of this study is the amount of lag time between the pre-test and post-test. This lack of reinforcement could account for no significant difference between the intervention and control groups and the decrease in post-test interpersonal scores. While the majority of students received interpersonal communication scores of “very good” or “excellent” at baseline, less than 50 percent of first-year students and approximately 55 percent of second-year students scored in this range at post-test. The decrease in interpersonal communication scores from baseline to post-test...
for first-year students in the intervention group was disturbing. Although these students had participated in the two-hour training session six months prior to the post-test, their clinical and didactic experience in the interim was identical to that of those students in the control group. The data also showed that scores decreased in both the control and intervention groups for second-year students. One related factor could be the increased course load for second-year students in the spring semester. These low scores suggest that the single, brief intervention was not sufficient for retention at the six-month post-test.

Increasing curriculum emphasis on patient-pro-vider communications in the preclinical years of dental school should improve students’ communication skills. At the Medical University of South Carolina, although a formal course in communication skills is not now in place, lectures in preventive dentistry (fall semester, first year) and behavioral sciences (spring semester, first year) courses target training students in health communication. Patient-provider interpersonal communication skills are also emphasized in pediatric dentistry during the second year. Effective communication with patients is highlighted as well during treatment planning courses in the third and fourth years. Additionally, students’ TCC communication skills are reinforced by students’ increased clinical contact with patients.

The results of this study suggest the need for specific instruction in interpersonal and TCC communication to improve students’ ability to competently interact with patients. Communication skills should be an integral part of the dental school curricula in both formal and informal courses with appropriate reinforcement and evaluation. The use of faculty-facilitated standardized patient-based training to do so can be incorporated into an integrated four-year comprehensive communications curriculum for dental students. Such a curriculum would involve multiple training sessions with students during the first- and second-year early clinics. Students would also be evaluated annually using an OSCE such as the one described in this study. Additionally, third- and fourth-year students would also be assessed using the OSCE on an annual basis, and remediation training sessions would be required as necessary to improve retention of communication skills. Employing a standardized evaluation methodology of students’ communication skills competency using an OSCE may help ensure that dental students are prepared to effectively communicate with patients upon graduation.

Clearly, more research in this area is warranted because communication skills are vital to the patient-provider relationship. The American Dental Education Association recommends that dental schools include communication skills training throughout the four years of predoctoral training.4 Competency in communication skills is important because effective communication is a vital component of achieving health literacy for patients, which is needed for improved health outcomes. Moreover, new dental graduates as health care providers will be evaluated on their patient communication skills in the Medical Expenditure Panel Survey.5 In order to meet the health communication objectives of Healthy People 2010, dentists and other health care providers need appropriate training in effective communication skills.

### Table 3. Dental students’ mean tobacco cessation counseling communication scores

<table>
<thead>
<tr>
<th>Students</th>
<th>Pre-Test Mean Score (s.d.)</th>
<th>Post-Test Mean Score (s.d.)</th>
<th>Comparisons from Pre-Test to Post-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>First Year</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Group (n=21)</td>
<td>3.4 (1.2)</td>
<td>4.2 (1.3)</td>
<td>p=0.02*</td>
</tr>
<tr>
<td>Intervention Group (n=23)</td>
<td>3.8 (1.1)</td>
<td>4.4 (0.8)</td>
<td>p=0.02*</td>
</tr>
<tr>
<td>Comparisons at Pre-Test and Post-Test</td>
<td>p=0.28</td>
<td>p=0.56</td>
<td></td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Group (n=25)</td>
<td>4.0 (1.2)</td>
<td>4.0 (0.9)</td>
<td>p=0.93</td>
</tr>
<tr>
<td>Intervention Group (n=24)</td>
<td>3.9 (0.9)</td>
<td>3.8 (1.3)</td>
<td>p=0.64</td>
</tr>
<tr>
<td>Comparisons at Pre-Test and Post-Test</td>
<td>p=0.89</td>
<td>p=0.61</td>
<td></td>
</tr>
</tbody>
</table>

*Indicates statistical significance at alpha=0.05.
This study assessed whether a single two-hour training session improved first- and second-year dental students’ communication skills and their ability to provide tobacco cessation counseling (TCC). The results show that the training was not sufficient to enhance dental students’ general communication skills as measured by a comparison of performance during an OSCE administered before and six months after training was provided. Groups of first-year students who did and did not receive training both scored significantly better on TCC during the post-training OSCE, but second-year students in the intervention and control groups did not improve their TCC scores from pre- to post-OSCE. These findings, coupled with prior research, suggest that more intensive training is needed to enhance dental students’ interpersonal communication skills, including TCC. The OSCE is a unique evaluation tool that can be used to provide a standardized assessment of students’ competency in several areas of dental education, including communication skills, medical history taking, and treatment planning. Utilization of the OSCE in evaluating comprehensive training programs can be a valuable educational methodology in dental education.

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REFERENCES